Appendix J

Watershed Analysis

A. **Introduction.** Watershed analysis is a procedure for assessing important riparian and aquatic habitat values and geomorphic processes within a watershed. It is to be considered within the overall context of ecosystem analysis. It describes key aquatic and riparian resources, along with their habitat conditions and trends. It is designed to:

1. Help set the stage for project planning
2. Strengthen the project NEPA analysis
3. Focus interdisciplinary discussion on key watershed-level resources, habitat relationships and management issues

Watershed analysis is not a decision process and does not propose any actions. NEPA compliance is not required for watershed analysis.

B. **Applicability.** Watershed analysis must be completed for any project decision that incorporates site-specific adjustment of process group standards & guidelines as provided for in the Riparian Forest-wide Standards & Guidelines. Watershed analysis is otherwise not required, but may be performed for a watershed if the responsible line officer determines it to be appropriate.

C. **Approach.** The responsible line officer will determine when a watershed analysis will be conducted and establish the purpose and scale of analysis. Watershed analysis may occur prior to development of a project proposal or as part of NEPA analysis for a specific project or projects. The need, scope and intensity of watershed analysis shall be based on a combination of issues, values and risks including, but not limited to:

1. Internal issues and public concerns and interests
2. Geomorphic characteristics and risks
3. Biological diversity and productivity
4. Past land use activities and watershed condition
5. Presence of threatened, endangered or sensitive species
6. Recommended or designated Wild, Scenic or Recreational Rivers
7. Water uses
8. Waters listed on the State of Alaska's 305(b) and 303(d) (Clean Water Act) lists

Watershed analysis shall use the basic framework relating to aquatic and riparian resources as described in: "Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis" (August 1995). Core topics for analysis include:

1. Erosion processes and wind disturbance regimes
2. Watershed hydrology
3. Stream channel morphology
4. Water quality
5. Aquatic and riparian dependent species and their habitats
6. Human uses
7. Cumulative risks to aquatic resources resulting from previous management disturbances and natural disturbances

Watershed analysis, at a minimum, will identify and describe aquatic and riparian resources, physical watershed characteristics and relevant issues. Products include:

1. Sediment risk analysis
   - identification of potential source areas (natural and resource management related)
   - identification of downstream depositional reaches and associated fish habitat
   - analysis of the hydrologic connection between source and deposition areas
2. Description of forest vegetative structure by size and age class
3. Identification of stream classes and aquatic species
4. Description of aquatic values and uses
5. Channel type inventory
6. Identification of Riparian Management Areas
7. Total miles of road and number of stream crossings
8. A description of the potential cumulative risks to aquatic resources resulting from past management disturbances

The scale and intensity of analyses will be determined by the significance of the issues, values and risks associated with management activities. When there are multiple risks to fish in the watershed, the intensity of watershed analysis should be commensurate with the level of cumulative risk. A more intensive, complex, and field-based watershed analysis will be needed in watersheds with, but not limited to:

1. High value of fish
2. High sediment yield risks or erosion potential
3. Extensive very high and high hazard soils
4. Presence of threatened, endangered or sensitive species
5. More than 20% of the watershed acres with trees in second growth younger than 30 years.
6. High density of roads and stream crossings

The scale of watershed-level analysis is generally between 5,000 and 20,000 acres, but can vary depending on project characteristics or issues being addressed.

D. **Documentation.** Complete a watershed analysis report. The analysis report documents current conditions and projected trends of past activities for aquatic and riparian habitats within the watershed. It will describe potential risks to aquatic resources and wetlands, and identify Riparian Management Areas. The report will provide recommendations that respond to the key management issues and analysis findings. Include in the documentation the criteria used by the line officer to establish the purpose and scale of the watershed analysis and the rationale for the watershed analysis recommendations. Include any recommendations for site-specific adjustment of process group standards and guidelines as provided for in the Riparian Forest-wide Standards & Guidelines. Include the watershed analysis report in any subsequent or concurrent documentation of project level decisions.